

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

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Dear Sir:

Twenty-seven U.S. uranium mills have contracts with the USAEC under which the Commission will buy through December 31, 1966 a total of 190,674,000-lbs. of uranium concentrates at an estimated cost of \$1,522,800,000. This includes delivery of 74,307,000-lbs. at a price of \$821,300,000 through March 31, 1962 and 116,367,000-lbs. at a price of \$931,500,000 for the extended 1962-66 period of the procurement program. In revealing its commitments, the Commission noted that there will be additional purchases made from further contract extensions; so far 15 contracts have been extended, with 12 now under review. (Other BUSINESS NEWS, p.3 this LETTER.)

A "substantial interest" will be acquired by Brush Beryllium Co., Cleveland, in new company to be formed by merger of two beryllium concerns controlled by Atlas Corp. and its chairman Floyd B. Odum. The two firms which will merge are Beryllium Resources, Inc., and Dynamic Metals Corp., both of Los Angeles, with Beryllium Resources to be surviving company. Beryllium Resources is owned by Hidden Splendor Mining Co., a subsidiary of Atlas Corp. and Federal Resources Corp., in which controlling interest is held by Mr. Odum. Beryllium Resources controls mining leases in the Topaz Mountain area of Utah, where beryllium in new mineral form was recently discovered. About 25% of Dynamic Metals stock is owned by Edward Van Dornick who has developed new flotation process for concentrating beryllium minerals. The remaining 75% is owned by Beryllium Resources and Hidden Splendor. Ownership of the new company will be divided among Brush, Federal Resources, Hidden Splendor, and Mr. Van Dornick. Brush, leading U.S. producer of beryllium metal, alloys, and fabricated products, expects to get some 50% of its ore requirements from the new company in the near future. (Other RAW MATERIAL NEWS, p.2 this LETTER.)

Beryllium monitor developed by the U.K. Atomic Energy Authority and manufactured and marketed by Winston Electronics, Ltd., Shepperton, Middlesex, England is finding a market outside the U.K. Export orders totaling £15,000 have been received by Winston from the U.S., France and Japan for the apparatus. The device detects and automatically records beryllium dusts in areas where the metal and its alloys are being worked. Using spectrographic means, the quantities of beryllium are measured at one-minute intervals. (Other PRODUCT NEWS, p.2 this LETTER.)

First in a new class of U.S. nuclear powered fleet ballistic missile submarines, the Ethan Allen was launched last fortnight at the Groton, Conn. yards of Electric Boat division of General Dynamics Corp. Reactor used was designed and developed at Bettis Atomic Power Laboratory, Pittsburgh, operated for the USAEC by Westinghouse Electric Corp. (Other REACTOR NEWS, p.4 this LETTER.)

Construction work has started at Brookhaven National Laboratory, Upton, L.I., on laboratory for work with high-intensity radiation sources. The sources, mainly in the million-curie range, will include cobalt-60 and cesium-137. Some \$1,850,000 has been allocated for the project by the USAEC. (Other RESEARCH NEWS, p.5 this LETTER.)



NEW PRODUCTS, PROCESSES, INSTRUMENTS...

NEW PRODUCTS: Low energy survey meter, Model 440, will detect and measure radiation of less than 1 mr/hr. Complete range, for betas and gammas, is 0-3; 0-10; 0-30; 0-100 and 0-300 mr/hr. Of the vibrating reed type, the instrument will handle an energy range of 6.5 kev to 1.2 mev. Detector used is an air ionization chamber with 3½-in. diameter Mylar end window. --Victoreen Instrument Co., Cleveland, Ohio.

Inexpensive line of iridium-192 cameras for industrial radiography are offered in five models. Capacities are 10, 25, 35, 50 and 100 curies of iridium-192, with weights ranging from 50 to 100-lbs. They are designed primarily for panoramic and internal radiography, are completely portable, and may be obtained with hand truck mounts. Applications are in radiographing from ¼" to over 3" of steel, or from ¾" to over 9" of aluminum. --Radionics, Inc., Norristown, Pa.

New air sampler for continuous duty and survey air sampling draws up to 16 liters per minute of air through filter paper. Vacuum pump, flowmeter and filter holder, all built into a protective carrying case, make up the unit. The apparatus may find use in checking emission of radioactive aerosols, among its applications. --Gelman Instrument Co., Chelsea, Mich.

Radio-iodohippurate sodium (I-131) is new pharmaceutical (Radio-Hippuran) which enables the physician to make a fast and precise comparison of the functions of the right and left kidney. Because the Radio-Hippuran is cleared more rapidly from the blood by the kidneys than are other isotope indicators, differences between the kidneys are magnified and testing time is reduced. --Abbott Laboratories, Oak Ridge, Tenn.

Ten new specifically labeled tritiated steroids for use in endocrinological and metabolic research, synthesized at the University of Louvain, Belgium, and exported by Belgonucleaire, are now offered in the U.S. They will be stocked in the U.S., and purity guaranteed and reverified by the U.S. agent prior to shipment. --New England Nuclear Corp., Boston 18, Mass.

PRODUCT NEWS: Base charges have now been established by the USAEC for plutonium distributed by the Commission for commercial-industrial purposes. The base charges are equal to the "fair prices" which the Commission will pay for the material. Such USAEC-established fair prices for plutonium delivered to the Commission prior to June 30, 1962 range from \$30 to \$45 per gram depending upon the content of the isotope plutonium-240; the fair price in the period July 1, 1962 through June 30, 1963 is \$30 per gram regardless of plutonium-240 content. No fair price has been established beyond June 30, 1963. (Until Dec. 31, 1960 all uses of plutonium by USAEC-licensees will be considered research uses for which the base charge is \$12 per gram. From Jan. 1, 1961 plutonium used in instrument components, i.e., plutonium-beryllium neutron sources, etc., will be considered as commercial-industrial.)

The 3000X image intensifier system produced by Tracerlab, Inc., Waltham, Mass., and finding use by the medical profession, is now offered by the company for commercial non-destructive testing. The new product, developed by Tracerlab, produces by means of electronic intensification of the X-ray image an image some 3000X brighter than that available on a conventional fluoroscopic screen. An important advantage of the system is the lower level of x-radiation required for inspection, and the consequent lowered radiation exposure to which the inspector is subjected. There are also economies effected in the X-ray generator and shielding requirements.

MANUFACTURERS' NEWS: Nuclear-Chicago Corp. has installed its twenty-third subcritical assembly, with completion of its job for Northeastern University, Boston, Mass. At Northeastern, the company made the installation in a new laboratory with complete radioactivity detection and measuring equipment. Nuclear-Chicago claims to be the largest supplier in the U.S. of these \$15,000 reactor training devices.

Two live steam reheaters to be built by the boiler products division of Dominion Bridge Co., Ltd., will be used in Canada's first large-scale nuclear power plant now under construction at Douglas Point on Lake Huron in southern Ontario. Each of these two reheaters consists basically of a horizontal cylindrical shell containing three removable tiers of extended surface finned tubing, mounted perpendicular to the axis of the cylinder. (The 200,000 kw Douglas Point nuclear power plant will be part of the southern system of the Hydro-Electric Power Commission of Ontario. The Commission is collaborating in its design and construction and will operate the station when it goes into service in 1965.)

ATOMIC ENERGY CONTRACT NEWS...

BIDS ASKED: Bids have been asked on approximately 1,500,000-lbs. of fused vanadium pentoxide offered by the USAEC's Grand Junction, Colo., office. The material is in seventeen lots, ranging from a low of 29,000-lbs. to a high of 101,500-lbs., with the average size about 95,000-lbs. At its last sale in April, 1960, the Commission sold approximately 1.5 million lbs. of vanadium pentoxide at \$1 a pound.

CONTRACTS AWARDED: Contract has been awarded Ebasco Services, Inc., New York, for architect-engineering services on the Advanced Test Reactor to be built at the National Reactor Testing Station, Arco, Idaho. Estimated cost of the work to be performed under the contract is \$4 million. Babcock & Wilcox Co., New York, as subcontractor to Ebasco, will handle design of the nuclear portion of the facility. (The reactor project, in addition to certain supporting facilities, comprises a nuclear reactor capable of operating at a power level of approximately 250,000 kw of heat. Some \$24 million has been authorized by Congress for the job. Separate contract will be let for construction which is scheduled to start by mid-May 1961, with completion expected in mid-1964.)

The firm of Giffels & Rossetti, Inc., Detroit, has received USAEC contract to handle architect engineering services for design of site facilities for the Natural Circulation Reactor Test Plant to be constructed at the National Reactor Testing Station, Arco, Idaho. Development work on this project is now underway at Knolls Atomic Power Laboratory, Schenectady, N.Y. (A nuclear power plant using the principle of natural convection to circulate the reactor coolant eliminates the need for large circulating pumps and associated electrical generating and control equipment.)

Under a \$270,850 contract award to Controls for Radiation, Inc., Cambridge, Mass., by National Aeronautics and Space Administration, the Cambridge firm will handle certain operational services at NASA's new Plum Brook nuclear reactor facility near Sandusky, Ohio. The contract will cover radiation monitoring and surveillance and other services. To handle the job, Controls for Radiation is setting up a permanent organization of about thirty-seven persons at Plum Brook.

ATOMIC ENERGY BUSINESS & FINANCIAL NEWS...

NEW U.S. BERYLLIUM SUPPLIER: General Astrometals, Yonkers, N.Y., has concluded licensing arrangements with Pechiney, Lyons, France, under which the U.S. firm will initially market Pechiney beryllium products. Using Pechiney beryllium flake and powder, General Astrometals plans to ultimately produce its own hot-pressed and vacuum-cast billets, extrusions and plates. The company will then join Brush Beryllium, Cleveland, and Beryllium Corp. of America, Reading, Pa., as U.S. fabricators of the metal.

NEW RADIOGRAPHY SAFETY & LICENSING REGULATIONS: New regulation, "Radiation Safety Requirements for Radiographic Operations", has been issued by the USAEC and published as 10 CFR 31. An amendment has also been made to existing regulations (10 CFR 30) establishing specific safety and licensing requirements for persons using sealed sources of by-product materials in radiography. The new rules were prompted by the substantial increase in the past year of non-destructive testing and inspection using equipment with radioisotopes as radiation sources.

MERGER OF URANIUM MINING FIRMS APPROVED: Merger of Gunnar Mines with Nesbitt LaBine Uranium Mines has been approved by shareholders of the companies. The two firms will be amalgamated into new company to be called Gunnar Mining Ltd. Nesbitt has been in stringent financial position, with current liabilities exceeding assets; both companies were under the same control. Estimated tax savings to Gunnar from the merger, using Nesbitt's tax position, will be between \$900,000 and \$1,000,000. Stockholders of Nesbitt will receive one Gunnar share for 80 Nesbitt shares.

RECORD SALE BY NUCLEAR FIRM: Fiscal year ended August 31, 1960 was most profitable in five year history of Volk Radiochemical Co., Chicago, the company reports. Sales of \$416,585 were up some 51% from the previous year, while profits of \$18,641 were five times higher. The company plans to raise some \$250,000 by sale of stock and debentures to pay for expanded research, development and marketing operations. It is now negotiating a lease on a new one story building at Skokie, Ill., for this expansion.

URANIUM MINING FIRM ON EXCHANGE: Listing of shares of Western Gold & Uranium on the American Stock Exchange and first market trading began last fortnight. The company, which owns and operates the Orphan uranium mine in Arizona, has been producing about 7,000 tons of ore per month said to assay more than 0.3% uranium oxide. Earnings for the six months ended July 31, 1960 were \$313,552 or 19¢ per share.

NEW BOOKS & OTHER PUBLICATIONS...

Isotope Effects on Reaction Rates. Lars Melander. The principles of kinetic isotope effects. 181 pages. --Ronald Press Co., 15 E. 26th St., New York, N.Y. (\$6.00)

Experimental and Research Work on Neutron Dosimetry. Report of investigations at Battelle Memorial Institute, Columbus, Ohio, by H. C. Gorton, O. J. Mengali, et al. No. PB-149,378. (Microfilm \$2.70; photostat \$4.80).....Simplified Film Dosimeter for Fission Neutrons. Report of work at Naval Radiological Defense Lab., San Francisco, by S. W. Ross, E. Tochilin. No. PB- 150,147. (Microfilm, \$2.70; photostat \$4.80).....Technique for Designing and Employing Radiological Monitoring System in Event of Nuclear Attack. Report of civil defense research project at Institute of Engineering Research, University of California, Berkeley, by Robert R. Read. No. PB-150,015. (Microfilm \$2.70; photostat \$4.80).....Prediction, Monitoring and Estimation of Radiological Fallout Patterns for Civil Defense. Work at University of California, Berkeley, by A. Broido, R. R. Read, R. W. Shephard. No. PB-150,014. (Microfilm \$3.00; photostat \$6.30). --Library of Congress, Wash. 25, D.C.

Marine Sciences Research. First in a series of pamphlets describing the USAEC's life sciences research program. No. TID-4040. (\$0.50).....Materials Testing. Bibliography of 240 U.S. Government research reports, translations, etc., on general and non-destructive testing of various materials. Includes work of USAEC, Navy, Air Force, Army, and other agencies in the U.S. and abroad. No. SB-411. (\$0.10).....Potential Applications of Radioisotopes to the Mining, Preparation, Storage, Handling and Use of Coal. Report prepared for the USAEC by Bituminous Coal Research, Inc., Pittsburgh, Pa. 233-pages. No. NYO-2859. (\$3.00).....Literature Survey of Concretes for Nuclear Radiation Shielding. Report of work at Naval Civil Engineering Lab., Port Hueneme, Calif., by Meldon Merrill, W. L. Cowell. No. PB-161,910.....High Altitude Sampling Program. Special report by A. K. Stebbins, Defense Atomic Support Agency, Wash., D.C. No. PB-161,916. (\$3.50). --Office of Technical Services, Wash. 25, D.C.

NOTES: Report of "Panel on Physical Data on Dose Distribution of High Energy Radiation" may be obtained from the originating agency, Department of Research and Isotopes, International Atomic Energy Agency, Vienna 1, Karntherring 11, Austria.

List No. 59 of "Publications Available to the Public", of the U.K. Atomic Energy Authority, may be obtained on request to the Authority at 11 Charles II St., London S. W. 1, England.

MANUFACTURERS' LITERATURE: Bulletin No. 587 of Nuclear Corp. of America, which describes tagged compounds, tracers, handling equipment, etc., may be obtained from the company at Denville, N.J.

Brochure describing the company's D/M gauge is available from Nuclear-Chicago Corp., Des Plaines, Ill. The D/M gauge is a system of portable instruments for rapid field determination of moisture and density of soils, aggregates and related construction materials.

REACTOR NEWS...

FIRST TESTS ON PLUTONIUM RECYCLE TEST REACTOR: Start up testing is underway on the USAEC's plutonium recycle test reactor (PRTR) at Hanford Works, following initial criticality achieved last fortnight. The tests, using various patterns of fuel loadings, will continue until design power of 70,000 kw of heat is reached. General Electric Co., operator of the Hanford plant, built and is operating the new reactor, which is heavy water moderated and cooled and is of the pressure tube type. Fuel elements contain plutonium rather than uranium-235 heretofore used exclusively in civilian power reactors.

BRITISH REACTOR IN OPERATION IN HOLLAND: The Jason research and training reactor of Reactor Centrum Nederland (the Dutch Atomic Energy Foundation) has now been put into operation; it had become critical last fortnight. The first British reactor to be completed and put into operation in a European Common Market country, the R.C.N. Jason was manufactured by Hawker Siddeley Nuclear Power, Langley, Bucks.

GRANTS FOR REACTOR PROJECTS ARE MADE: Grants of \$350,000 each have been made by the U.S. to the governments of Japan and Venezuela toward the cost of completed research and training reactor projects on those countries. Japan's reactor, supplied by AMF Atomics, division of American Machine & Foundry, is heavy water moderated and cooled with rated power of 10 thermal mw. It is located at the Japan Atomic Energy Research Institute, Tokai-mura. The Venezuelan reactor was constructed by General Electric Co. for the Institute Venezolano de Investigaciones Cientificas, Caracas.

ATOMIC ENERGY PATENT DIGEST...

PATENTS ISSUED November 22, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Method for neutralizing obnoxious radiation. Rudolf Alberti, St. Andreasberg, Germany, inventor. No. 2,961,599 issued to inventor of record. (2) Monitoring ionizing radiation. Irving W. Ruderman, inventor. No. 2,961,541 assigned to Isomet Corp., Palisades Park, N.J. (3) Monitoring apparatus for radioactive effluents from nuclear reactors. Jon F. Hauck, inventor. No. 2,961,543 assigned to Allis-Chalmers Manufacturing Co. (4) Source shield for density logging instruments. Arthur H. Youmans, Ralph Monaghan, Billy F. Wilson, Tell A. Henrichs, inventors. No. 2,961,544 assigned to Well Surveys, Inc.

PATENTS ISSUED November 22, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Multi-channel electric pulse height analyser. James D. Gallagher, Joseph L. McKibben, inventors. No. 2,961,159 assigned to USAEC. (2) Method of preparing uranium, thorium, or plutonium oxides in liquid bismuth. John K. Davidson, Walter L. Robb, Oliver N. Salmon, inventors. No. 2,961,390 assigned to USAEC. (3) Water boiler reactor. L. D. King, inventor. No. 2,961,391 assigned to USAEC. (4) Neutronic reactors. Eugene P. Wigner, inventor. No. 2,961,392 assigned to USAEC. (5) Power breeder reactor. Harry O. Monson, inventor. No. 2,961,393 assigned to USAEC. (6) Settable neutron radiation shielding material. Irving R. Axelrad, inventor. No. 2,961,415 assigned to USAEC. (7) Co-axial discharges. John S. Luce, Lloyd P. Smith, inventors. No. 2,961,558 assigned to USAEC. (8) Radio altimeters. Robert W. Bogle, inventor. No. 2,961,652 assigned to USAEC. (9) Radio ranging devices. Robert W. Bogle, inventor. No. 2,961,653 assigned to USAEC. (10) Method and means for obtaining hydromagnetically accelerated plasma jet. John Marshall, Jr., inventor. No. 2,961,559 assigned to USAEC.

PATENTS ISSUED November 29, 1960 to PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:

(1) Method of recovering zirconium values from zircon. Charles J. Sindlinger, Carl C. Clayton, Jr., inventors. No. 2,962,347 assigned to Columbia-Southern Chemical Corp., Allegheny County, Pa. (2) Purification of zirconium halides. Stuart Schott, Virgil L. Hansley, Harry Greenberg, inventors. No. 2,962,352 assigned to National Distillers and Chemical Corp., New York, N.Y. (3) Catalytic hydrocarbon radio-chemical conversion process. John P. Longwell, Peter J. Lucchesi, Robert B. Long, inventors. No. 2,962,430 assigned to Esso Research and Engineering Co. (4) Activated carbon catalyst radiochemical hydrocarbon conversions. Elroy M. Gladrow, inventor. No. 2,962,431 assigned to Esso Research and Engineering Co. (5) Radiation detecting. Serge A. Scherbatskoy, inventor. No. 2,962,590 issued to inventor of record. (6) Method for analyzing the structure of solid objects. Harold S. McNabb, Milos D. Voss, inventors. No. 2,962,591 assigned to Iowa State College Research Foundation, Inc., Ames, Iowa. (7) Dosimeter. Frank E. Hoecker, Homer L. Hiebert, inventors. No. 2,962,592 issued to inventors of record. (8) Proportional valve. Alexander Thomas, inventor. No. 2,962,593 assigned to Tracerlab, Inc., Waltham, Mass.

PATENTS ISSUED November 29, 1960 to GOVERNMENTAL ORGANIZATIONS: (1) Compensated ionization chambers. Jacky Weill, inventor. No. 2,962,614 assigned to Commissariat a l'Energie Atomique, Paris, France. (2) Treatment for improving the operation of strong base anion exchange resins. Peter C. Stevenson, inventor. No. 2,962,351 assigned to USAEC.

RESEARCH NEWS...

WORK ON "COATED PARTICLE" NUCLEAR FUEL SCHEDULED: Three year research program has been initiated by the USAEC on the "coated particle nuclear fuel concept". Work will be done at Battelle Memorial Institute, Columbus, Ohio, under an existing Commission contract. Objectives of the program are to develop coated particles with high temperature properties, fission product retention capability, and good neutron economy.

MODIFICATION OF BEVATRON PLANNED: The 6.2 bev proton accelerator of the University of California is scheduled to undergo a \$9.6 million modification to increase beam intensity and improve efficiency. Major new facility planned will be an external proton beam for experiments with particles having very short half-lives. A new ion gun and a new linear accelerator will inject protons into the machine at about 20 mev.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER